

MARINE SAFETY BULLETIN

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TERRORIST CHEMICAL DEVICE

OVERVIEW

Department of Homeland Security (DHS) Information Bulletins are informational in nature and are designed to provide updates on the training, tactics, or strategies of terrorists. The following information is meant to advise owners of public venues of one possible type of improvised chemical device threat. While DHS possesses no information indicating specific targeting of the U.S. infrastructure, such targeting would be consistent with Al-Qaeda's stated objective to disrupt and undermine vital economic interests in this country.

Terrorist interest in toxic chemical materials and delivery methods has been growing and probably will increase further in the near term. Reasons for this interest include the relative ease with which some of these materials can be acquired and produced, the potential for large numbers of casualties and psychological impact on a population, and disruption at the scene of the event and to related infrastructure.

DETAILS

Terrorists have designed a chemical dispersal device fabricated from commonly available materials, which is designed to asphyxiate its victims. The device produces cyanogen chloride (CICN) gas and/or hydrogen cyanide (HCN) gas. Little or no training is required to assemble and deploy such a device, due to its simplicity. Security personnel should be aware of the variety of symptoms related to the chemical substances described below. The appropriate law enforcement/safety personnel should be contacted should there be a concern.

According to available information, this improvised chemical device (see Figure 1) consists of a pierced container or canister, such as a large milk container or paint can. The holes would presumably allow the toxic gas to exit. Some of the materials in the device are likely to be in glass bottles or vials. The bottom of the container, around the bottles, would be partially filled with white solid and reddish-brown crystals. The device can be used with or without a detonator. A detonator, or other means, is used to break the glass containers, releasing the acid and allowing the chemicals to mix, creating a vapor.

The device could be placed near air intakes or ventilation systems, in crowded open spaces or in enclosed spaces. Except in rare cases, use of a ventilation system for dispersal would dilute the gas from one or several of these devices with the result that mass casualties are unlikely to occur. HCN and CICN have a relatively low toxicity; therefore a large concentration of the gas is needed to produce lethality. The gas readily dissipates; therefore, it would need to be generated quickly in order to deliver lethal levels of gas. In most cases, HCN and CICN would not be effective in large open areas with good ventilation.

These gases are most effective when released in confined spaces such as subways, buildings, or other crowded indoor facilities. It is difficult, however, to judge the effectiveness of an attack using dozens of these devices, or the secondary effects of fear and panic.

Description:

Cyanide is one of the main chemical poisons in which terrorist groups have shown an interest, both because of its ease of dissemination and its availability. Cyanide salts may be combined with an acid to form a binary (two-part) chemical weapon. A simple mixing of the two components generates cyanide gas, which can cause dozens of casualties if used at high concentrations in an enclosed area.

- Sodium cyanide (NaCN) and potassium cyanide (KCN) are white to pale yellow salts.
- Hydrogen cyanide (HCN) is a colorless liquid that boils near room temperature.
- Cyanogen chloride (ClCN) is a colorless to pale yellow liquid, which boils below room temperature.

Indicators of an attack:

HCN has a characteristic odor of bitter almonds that could provide a degree of warning to exposed individuals. ClCN has an acrid, choking odor and causes burning pain in the victim's eyes below lethal concentrations. These warning properties may make it possible to evacuate or ventilate the attack site before the agent reaches a lethal concentration.

HCN produced by the reaction of cyanide salts and acid generates a white cloud around the device generating the gas. Both HCN and ClCN need to be at high concentration to be effective, so evacuating or ventilating the target area will significantly reduce the agent's lethal potential.

Cyanide compounds disrupt cells' ability to utilize oxygen, leading to suffocation. Exposure to high concentrations of cyanide may produce nausea, vomiting, palpitations, confusion, hyperventilation, anxiety and vertigo which may progress to agitation, stupor, coma, and death. Medical countermeasures for cyanide poisoning include: high doses of oxygen, inhalation of amyl nitrite while a solution of sodium nitrate/sodium thiosulfate is prepared for intravenous use and hyperbaric oxygenation if the victim does not respond to initial treatments. Prompt treatment is of the utmost importance.

SUGGESTED PROTECTIVE MEASURES

Terrorists continue to select soft targets for attack--particularly those that will yield a high casualty count. There are two categories of soft targets that a terrorist may choose for attack, those being soft targets with controlled access and soft targets with uncontrolled access. Examples of soft targets with controlled access include sports stadiums, arenas, and office buildings (with security guards). Examples of soft targets with uncontrolled access include hospitals, malls, restaurants, and schools. All available antiterrorism measures should be rigorously reexamined -- to include: physical security perimeters, personnel awareness, and reporting methods. The following are the recommended general protective measures that apply to both categories and those specific protective measures recommended for soft targets with controlled access:

General Protective Measures for Controlled and Uncontrolled Access:

- Encourage personnel to take notice and report unattended packages, devices, briefcases, or other unusual materials immediately; inform them not to handle or attempt to move any such object, especially near air intakes.
- Encourage personnel to know emergency exits and stairwells and the locations of rally points to ensure the safe egress of all employees.
- Increase the number of visible security personnel wherever possible.
- Institute/increase vehicle, foot, and roving security patrols varying in size, timing and routes.
 - Enclosed spaces, such as restrooms, should be inspected
 - Delivery to concessions in stadiums, arenas, and conference centers should be inspected prior to scheduled events.
- Implement random security guard shift changes.
- Limit the number of access points and strictly enforce access control procedures.
- Deploy visible security cameras and motion sensors.
- Arrange for law enforcement vehicles to be parked randomly near entrances and exits.
- Review current contingency plans and, if not already in place, develop and implement procedures for receiving and acting on threat information, alert notification procedures, terrorist incident response procedures, evacuation procedures, bomb threat procedures, hostage and barricade procedures, chemical, biological, radiological and nuclear (CBRN) procedures, consequence and crisis management procedures, accountability procedures, and media procedures.
- Conduct internal training exercises and invite local emergency responders (fire, rescue, medical and bomb squads) to participate in joint exercises.

Additional Specific Protective Measures for soft targets with controlled access:

- Inspect vendor items being brought into soft target areas prior to event.
- Inspect all items being carried in by patrons accessing soft target areas.
- Ensure proper badging and identification of all working staff for event.
- Conduct security sweep of soft target area prior to event.

FIGURE 1: COMPONENTS OF POSSIBLE TERRORIST CHEMICAL DEVICE

Recently obtained information details the construction of a possible terrorist chemical weapon made with easily available items. If used the device would likely produce cyanogen chloride, hydrogen cyanide, and possibly chlorine. Little or no training is required to assemble and deploy such a device, due to its simplicity.



The chemical device consists of a pierced container or canister, such as a large milk container or paint can, to allow the toxic gas to exit (1). Some of the materials in the device are likely to be in glass bottles or vials (2). The bottom of the container, around the bottles, would be partially filled with white solid and dark reddish-brown crystals (3 and 4). The device could be used with or without a detonator (5). The detonator or other means is used to break the glass containers, releasing the acid and allowing the chemicals to mix, creating a vapor, which would be absorbed by an air intake and distributed within the target building.

While the device might be positioned near air intakes or a ventilation system, except in rare cases, use of a ventilation system for dispersal would dilute the gas from one or several of these devices to the extent that casualties are unlikely to occur. However, this device will most likely be effective in an enclosed space.

- The cyanogen chloride will be irritating to lungs and eyes before it reaches a lethal concentration, and it emits a dense smoke. Both effects would slow evacuation and cause panic-related injuries in an enclosed space.
- It is likely that all reactants will not be totally consumed at first, and the device may reactivate when it was disturbed, which could severely impair emergency responders.

DHS intends to update this Information Bulletin should it receive additional relevant information, including information provided to it by the user community. Based on this notification, no change to the Homeland Security Advisory System (HSAS) level is anticipated; the current HSAS level is YELLOW.

All recipients of this bulletin are encouraged to report information concerning suspicious or criminal activity to local law enforcement and the Marine Safety Office at (504) 589-6261 or the National Response center via the 24-hour telephone number at 1-800-424-8802.